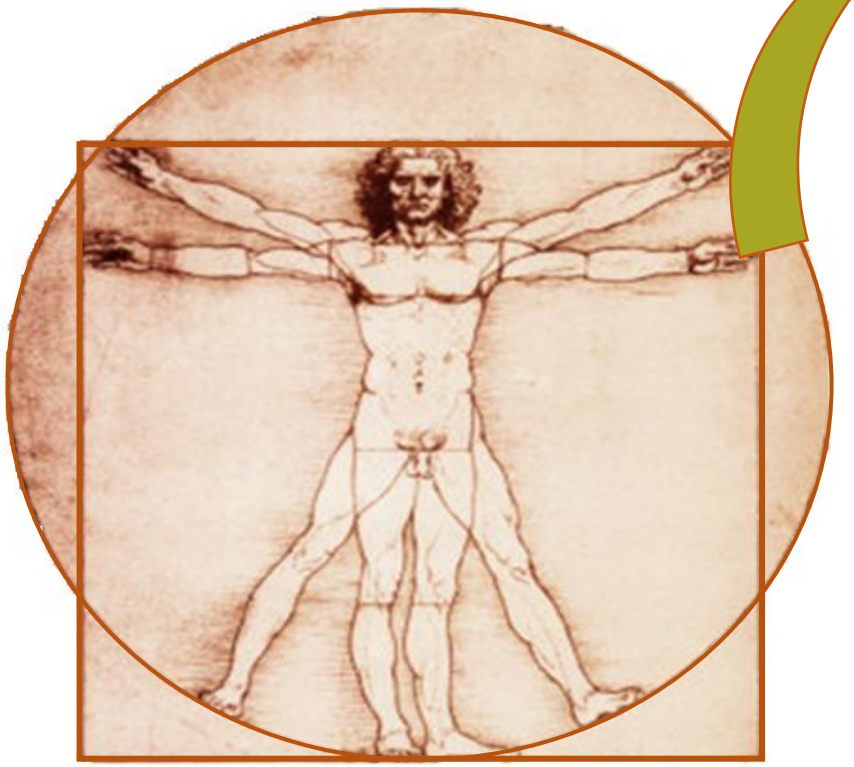
h_da
HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES

T- Shaped … No? not in Germany

Prof. Dr. Bernd Steffensen –
Department for Social Sciences

Polytechnic Summit 2018
Lima – June 2018

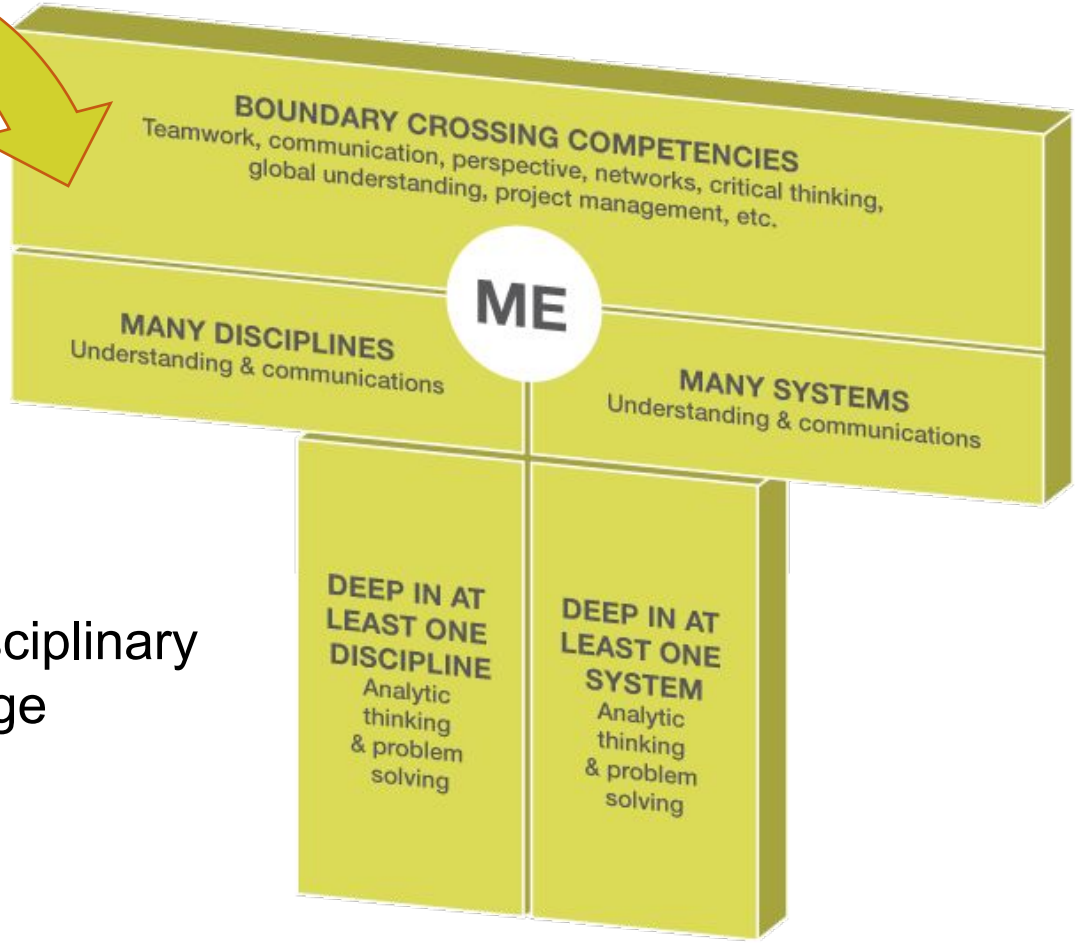
The T-shaped professional



Deep disciplinary knowledge

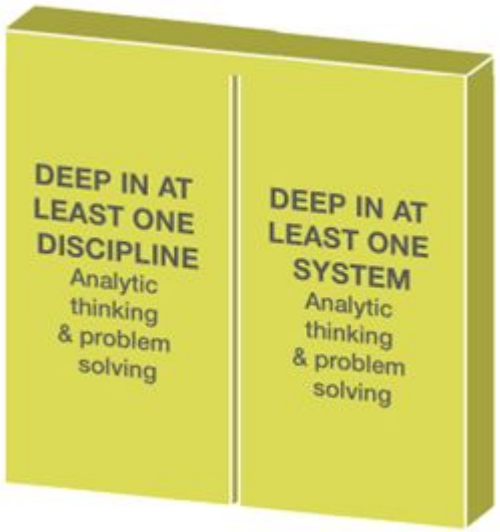
+

Ability to communicate across boundaries



Source: http://tsummit.org/t

The „STEM“ of the T



- The essential disciplinary part of every program (education)
- Deep knowledge in a “marked off” area
- Intensive study over a long time
- Focused
- The individual is seen as an authority in the field

Michael Crichton coined the term

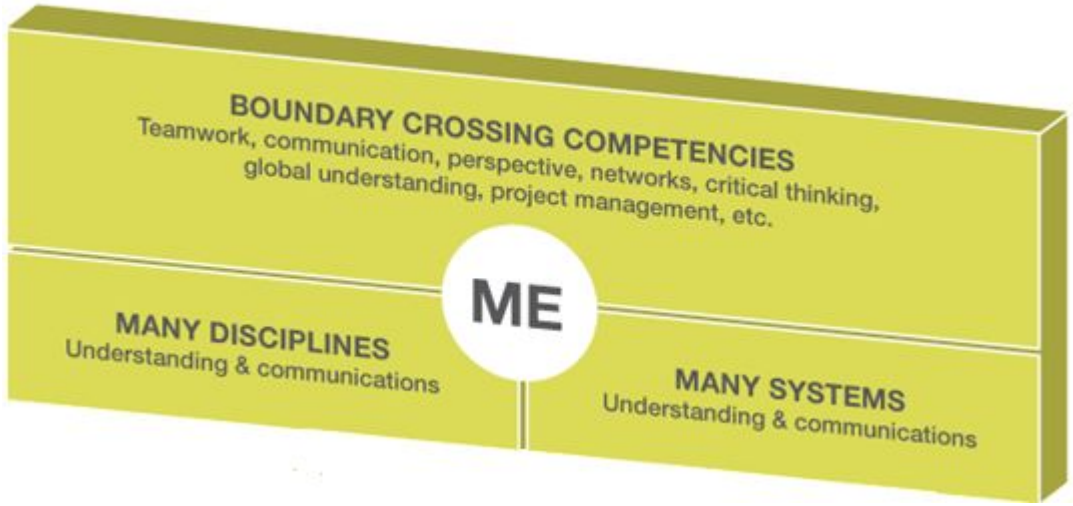
“thintelligent”

to describe engineers who “think narrowly and . . .call it ‘being focused.’ They don’t see the surround. They don’t see the consequences.”

Jurassic Park (1990: p. 284)

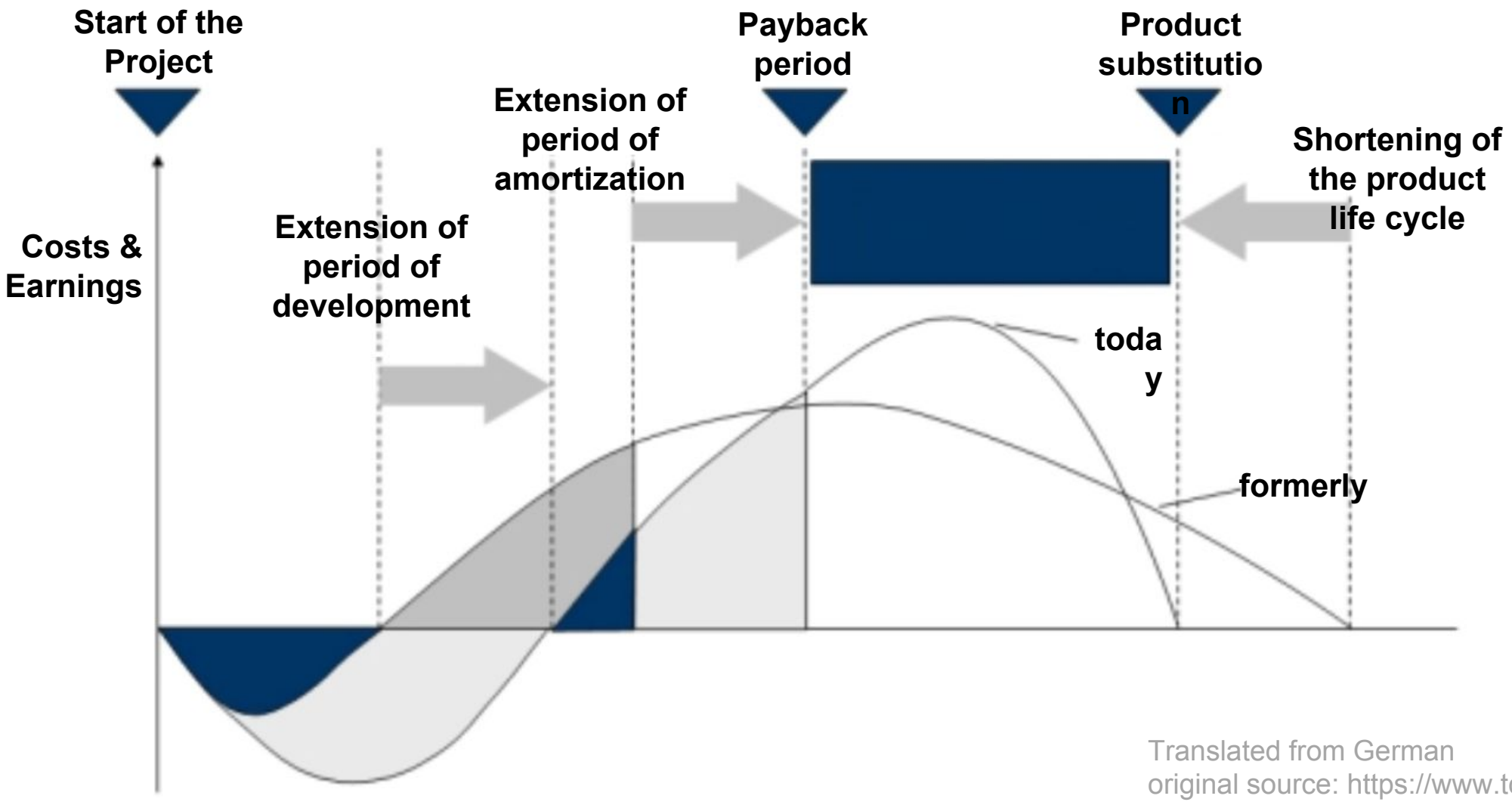
We call them „nerds“ or discipline idiots

The „bar“ of the T



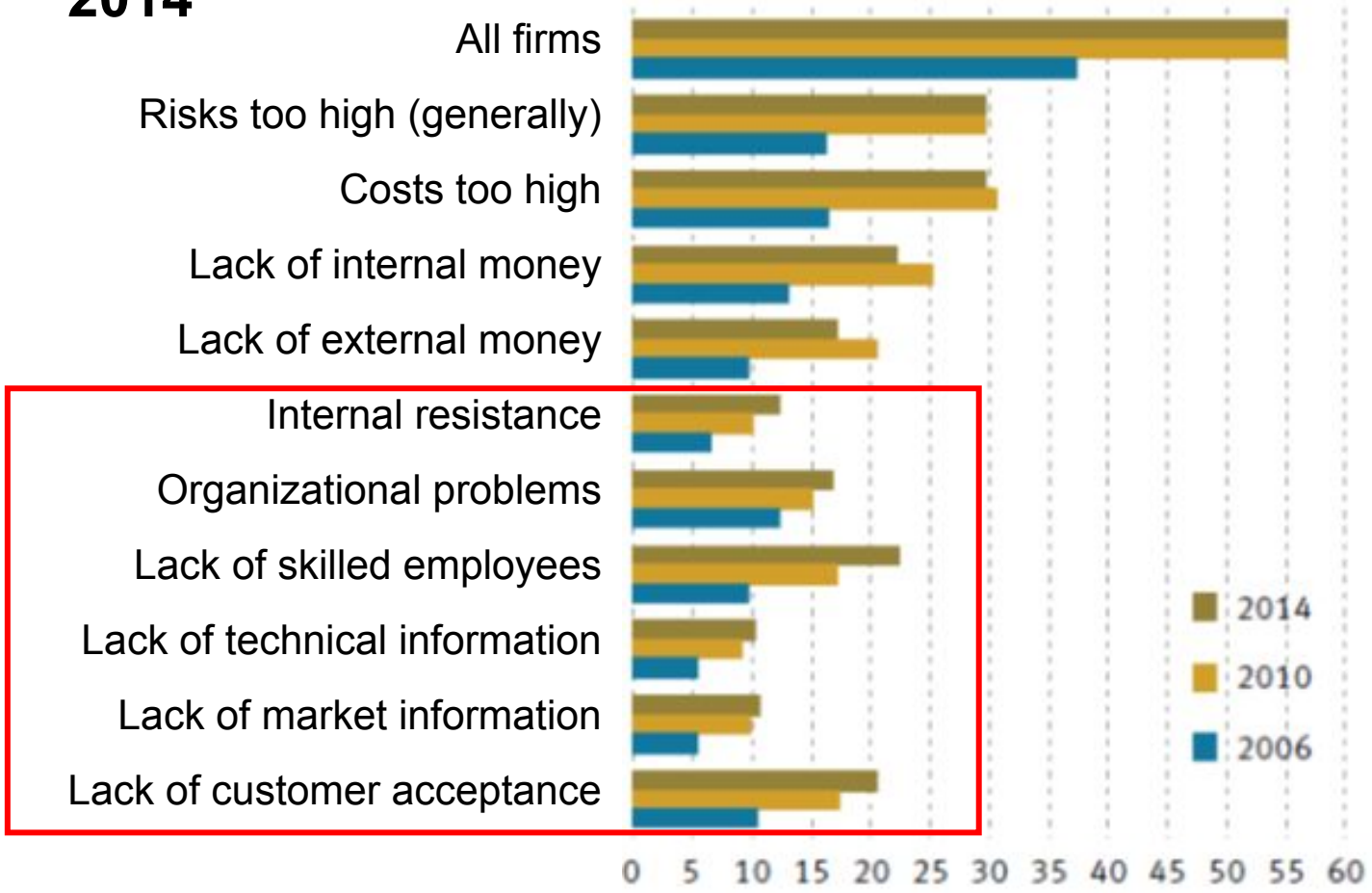
- Possession of boundary crossing competencies
- Deep interest in areas beyond the “marked off” own discipline
- Communication skills
  - Empathy
  - understanding
- A (more) rounded individual

Changing Innovation Processes



Translated from German
original source: https://www.tcw.de/

Innovation Restraints 2006, 2010, and 2014



- Multiple answers possible
- in % of firms participating in the survey

http://www.zew.de/fileadmin/FTP/zn/schwerpunkte/innovation/Innovationen0316.pdf

The Rogers Factors

- **Relative Advantage:** degree to which an innovation is perceived by (potential) customers to be better than established products or ideas
- **Compatibility:** degree to which an innovation is perceived by (potential) users to be consistent with existing values, experiences or processes.
- **Complexity/Simplicity:** Is the innovation easy to use by the adopter?
- **Trialability:** degree to which the innovation can be experienced by the (potential) user
- **Observability:** Degree to which the benefits of an innovation are visible.

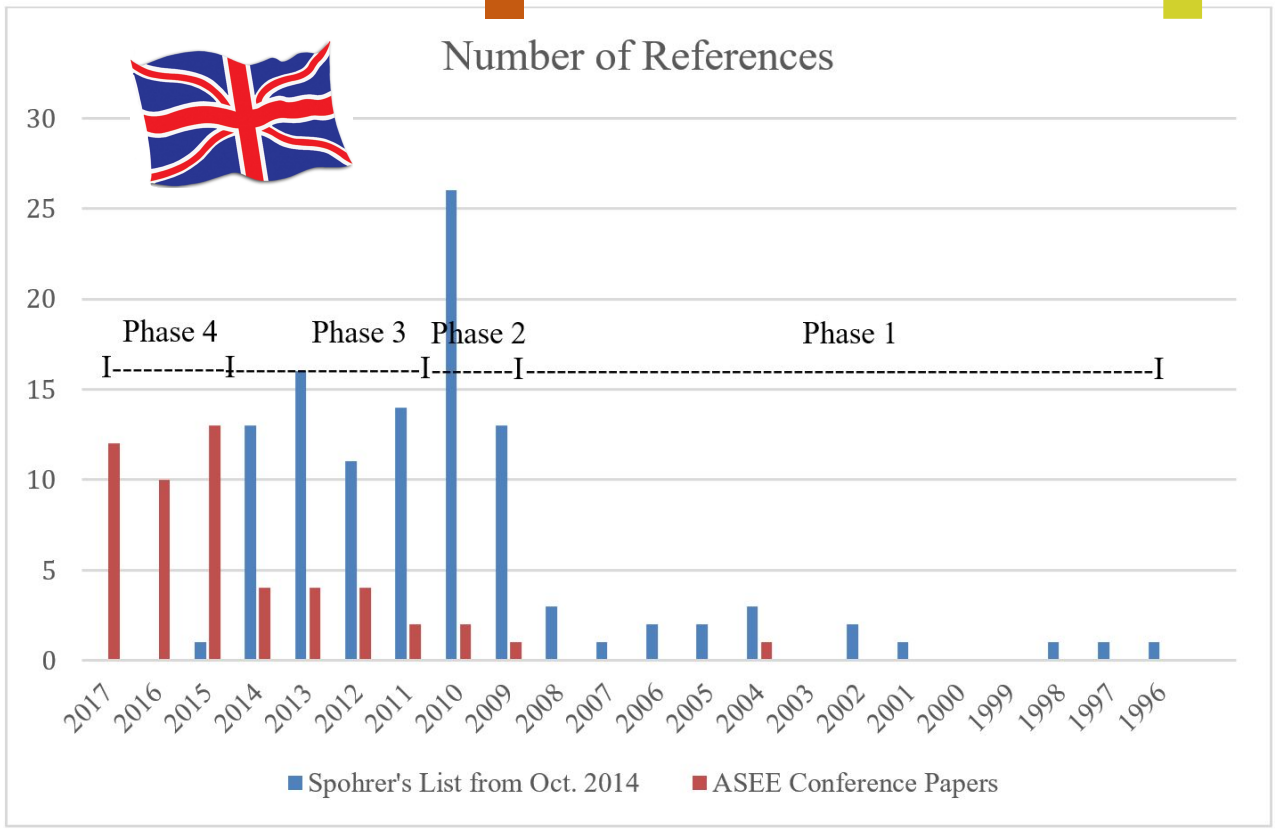
E. Rogers: Diffusion of Innovation, 1985

I- shaped or T- shaped ?

- Interesting regional differences
  - USA – English speaking countries
    - ➢ “Spohrer’s List”
    - ➢ ASEE Annual Conferences
  - Germany – German speaking countries
    - ➢ ????

Taken from: Neeley/Steffensen (2018): The T-Shaped Engineer as an Ideal in Technology Entrepreneurship: Its Origins, History, and Significance for Engineering Education. 125. Annual Conference of the ASEE, Salt Lake City, UT, June 2018, in print.

I - shaped or T - shaped ?



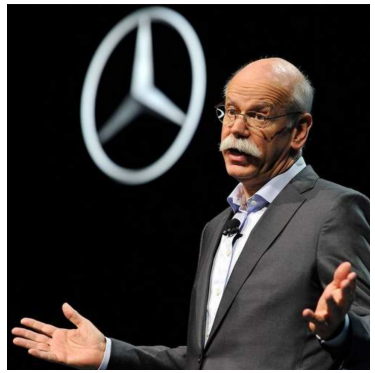
2010 (2)
2011 (1)
2014 (2)
2015 (2)
2016 (2)
2017 (4)

Taken from: Neeley/Steffensen (2018): The T-Shaped Engineer as an Ideal in Technology Entrepreneurship: Its Origins, History, and Significance for Engineering Education. 125. Annual Conference of the ASEE, Salt Lake City, UT, June 2018, in print.

I- shaped or T- shaped ?

- Why do we see so little change in the way we teach in Germany?
  - Dipl.-Ing. – Made in Germany?
  - “A ‘Dipl.-Ing.’ in front of your name is like a star on the engine hood: A trademark of highest quality.”

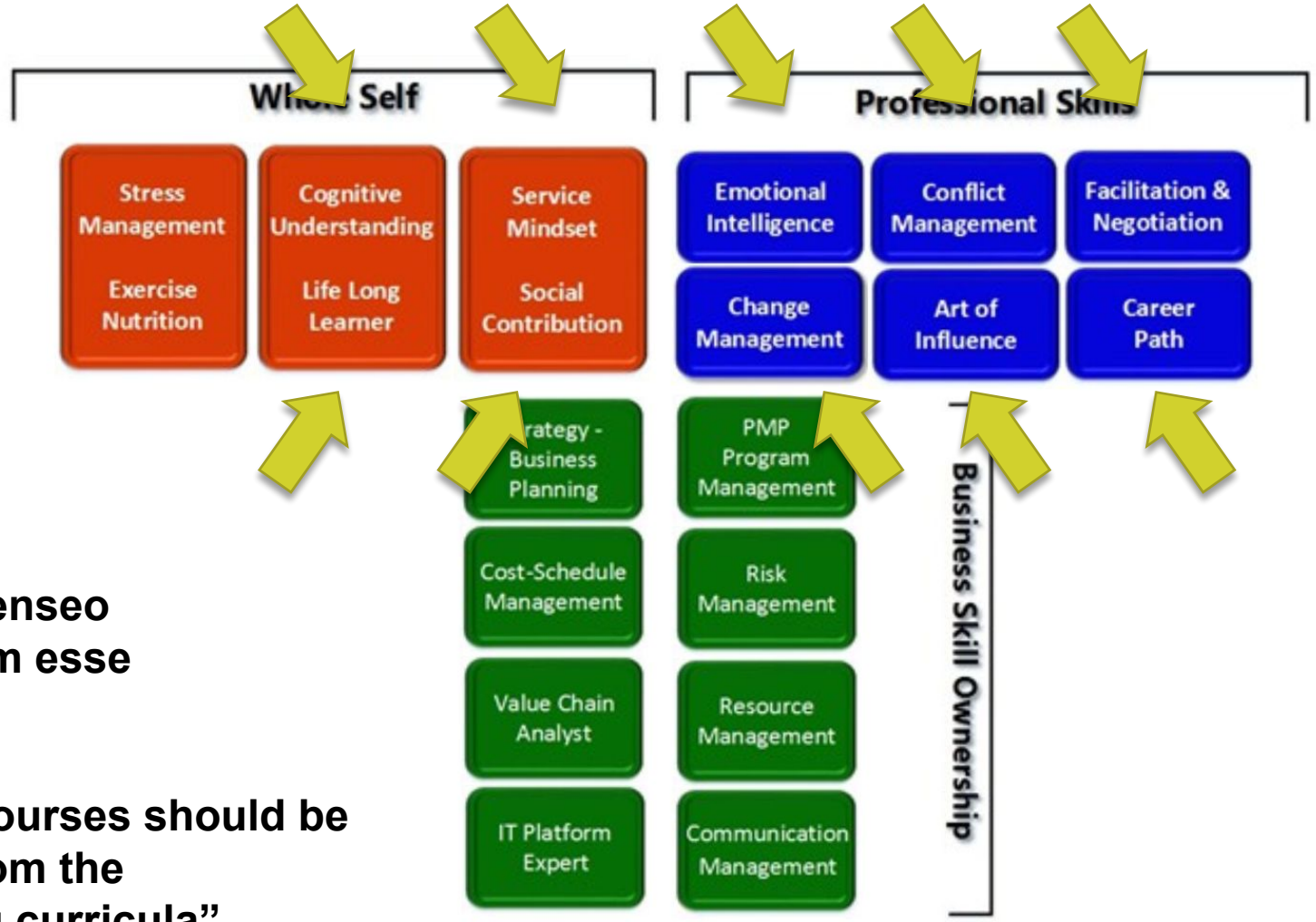
(D. Zetsche, Chairman of the board of the Daimler AG)



https://www.grandprix247.com/2018/01/18/zetsche-we-are-100-aligned-with-ferrari/

Quote translated from German →
http://www.tu9.de/projects/3670.php

The T-shaped professional



„Ceterum censeo Carthaginem esse delendam!"

"... These courses should be removed from the engineering curricula"

ASPEtraining.com on:
http://slideplayer.com/slide/9106379/

I- shaped or T- shaped ?

- “You know, Prof. Steffensen, we are able to calculate
  but we don’t (like to) communicate!”
- The perspective of the engineering professors is often not very different.
- Some of the innovation flops or failures to anticipate new challenges might highlight the need to listen more to the customers or stakeholders and less to brilliant engineering traditions.

https://www.thecalculatorsite.com/misc/cubic-feet-calculator.php

http://footage.framepool.com/en/shot/150397553-ring-binder-complaining-dissatisfaction-file-document


cloud
a
b
yes